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**REVISION OF SMALL-SCALE MAPS FROM MEDIUM-SCALE  
AERIAL PHOTOGRAPHS**

Submitted by the Government of the Federal  
Republic of Nigeria

**THE NIGERIAN 1/1 MILLION SCALE MAP**

The map of Nigeria on a scale of 1/1 million was originally compiled in 1924 from sketches produced by early explorers and administrators. The sketches could not be relied upon to be accurate but they were good enough to be used to produce a map of some sort which will indicate the relative positions of the main towns and the main routes for communication. Subsequent travellers or public officers using the maps have been the main source of revising them because of the valuable amendments which they supplied as they moved around in Nigeria using the maps as their guide.

Methods of Revision

The early topographical maps of Nigeria were compiled by ground methods on a scale of 1/125,000. The process of compilation was laborious as it involves the surveying of every detail on the ground. These maps were later graphically reduced to revise the map on 1/1 million. This is a time-consuming procedure and the rate at which the map revision was undertaken was very slow.

After the 1939-45 Second World War, photogrammetry and aerial surveys were introduced into mapping in Nigeria. From then, the basic mapping of the country has been done on a scale of 1/50,000. Some were contoured maps with controls provided by ground surveys while others were planimetric maps controlled by astro-fixes. These maps are progressively reduced photographically and used to revise the 1/1 million scale map. It is, however, not possible to complete the mapping of about 360,000 square miles of Nigeria on a scale of 1/50,000 in time for the complete revision of the 1/1 million scale map to be undertaken to meet immediate requirements. It was then obvious that other means must be explored to revise the 1/1 million scale map to enhance its usefulness.

Revision by aerial photographs:

Nigeria is almost entirely covered by aerial photography on scales varying between about 1/40,000 to 1/50,000. It is quite obvious that, if the scales of these photographs are reduced, the errors in the original photographs will be reduced correspondingly and the resulting photographs would be more accurate than the original photographs. It was then thought such reduced photographs could be more realistically utilised to revise the map on a scale of 1/1 million.

As a test case the four 1/50,000 sheets covering one of 1/100,000 map series were reduced to form one composite 1/100,000 which was later reduced to the scale of 1/1 million. A photo-lay down or uncontrolled mosaic of the pictures covering the same area was produced on the scale of 1/100,000 annotated and later reduced to the scale of 1/1 million. A tracing of the details were produced and superimposed on the compilation obtained from the 1/50,000 map sheets. The similarities were very striking and there were no major discrepancies. It was then decided to adopt the method to revise the 1/1 million map in areas not covered with accurate maps.

Nigeria has been divided into  $\frac{1}{2}^{\circ} \times \frac{1}{2}^{\circ}$  standard sheets. The aerial photographs at the scale 1/40,000, covering the areas of the country not covered with maps, were assembled together by each standard sheet and annotated. They were then photo-reduced to the scale of 1/100,000 and, after tracing on a scale-stable material they are further reduced to the scale of 1/1 million. The sheets edges were compared before they were scribed and printed.

Conclusion

The new map has been checked and found to be more accurate and to contain more information than the old edition it replaced. More tributaries of rivers now appear on the map and road alignments are more accurate. It is now being proposed to adopt the same procedure in revising the 1/500,000 map series of Nigeria.